

SECTION 530

TIMBER STRUCTURES AND TIMBER CONSTRUCTION

530.1 GENERAL

Timber structures erected under these specifications shall conform to the dimensions and details shown on the plans and shall be constructed in accordance with these requirements unless otherwise provided.

530.2 REFERENCES

- 530.2.1 This Publication:
SECTION 146
SECTION 157

530.3 MATERIALS

Timber and lumber that is stored prior to its use shall be neatly piled on skids in a manner that will prevent warping and shall be protected from the sun when so required. Materials shall be stored or piled to permit ready access for inspection. The use of cant hooks, peavies, or other pointed tools and hooks will not be permitted in the handling of structural timber, lumber or piles. Care and precaution shall be exercised in handling treated material in order not to damage or abrade the surface thereof to the extent of exposing untreated wood, and any piece so damaged or abraded will be rejected. Treated timber or piling cut after treatment shall be treated in accordance with Section 146. This same requirement shall apply to any surface that has become damaged or abraded to the extent of exposing untreated wood. All borings and holes shall be similarly treated, and those that are not to be used for rods, bolts, pins, screws, spikes, and the like or that will not subsequently be otherwise closed shall be tightly filled with treated plugs. Timber for floors and decks and that which is to be used in construction of split ring or shear plate connected trusses shall be well seasoned and thoroughly air dried before being incorporated in the work. This requirement shall apply to all material treated or untreated.

530.4 WORKMANSHIP

All lumber and timber shall be cut and framed to a close fit and shall have even bearing over the entire contact surfaces. No shimming will be permitted in making joints. Holes for drift pins in untreated lumber shall be bored with a bit 1/16 inch less in diameter than the pin or dowel. Holes for drift pins and

dowels in treated lumber shall be bored with a bit of the same diameter as the pin or dowel. Holes for truss rods or bolts shall be bored with a bit 1/16 inch larger than the rod or bolt. Holes for lag screws shall be bored with a bit not larger than the base of the thread. In small timbers where the prevention of splitting is necessary, holes shall be bored for spikes with a bit having a diameter not larger than that of the spike. In the installation of metal timber connectors, care shall be exercised to insure that the connector is installed concentric with its corresponding bolt; and if more than one connector bolt is installed in any individual joint, all bolts in such joint shall be drawn up to an even and uniform tension. The grooves for split-ring and shear-plate connectors shall be drawn up to an even and uniform tension. The grooves for split-ring and shear-plate connectors shall be carefully cut to a uniform width and depth for full perimeter thereof. The dimensions of these grooves and the manner and means of cutting shall be as recommended by the manufacturer of the particular connector to be installed; and any special tool or equipment used in cutting the grooves shall be operated in the manner and at the speed similarly recommended. Toothed-ring and spiked-grind connectors shall be installed by means of pressure equipment of a type intended for the purpose. However, split-ring connectors shall not be forced on but shall be expanded to such extent as to readily slip over the core formed by the groove without damaging the wood. All bolts, unless otherwise indicated on the plans, shall be 3/4 inch in diameter or larger and shall be of sufficient length to project beyond the nut when the nut is drawn tight. Bolts shall be fitted at each end with either a malleable iron (ogee) washer or a steel plate at least 3 inches square and not less than 3/8 inch thick or as otherwise shown on the plans.

530.5 FRAMING

- 530.5.1 Mudsills shall be firmly and evenly bedded on solid material.

530.5.2 Sills and caps shall have a full even bearing on the pedestals, mudsills, posts, or piles. Caps and sills shall be securely drifted to the posts by drift bolts not less than 3/4 inch in diameter,

extending into the post by at least 9 inches, and set approximately in the center of the posts.

530.5.3 Bents shall be accurately aligned before the bracing is placed. Bracing shall be fastened at the ends and at each intersection by 3/4 inch bolts. Bracing shall be of such length as will provide a minimum distance of 8 inches between the outside bolt and the end of the brace.

530.5.4 In placing joints, the better edge shall be placed down. The elevation of the tops of adjacent joists shall not vary more than 1/8 inch. Outside joists shall have butt joints. Interior joists shall be lapped and shall extend the full width of the cap to obtain full bearing. Bridging between joists shall be solid and fastened to the joists near the top of the block and on each side of the bottom of the block. Bridging shall be accurately cut to fit closely between the joists.

530.5.5 Trusses when completed shall show no irregularity of line. Chords shall be straight and true from end to end in horizontal projection, and in vertical projection shall show a smooth curve through panel points conforming to the correct camber. Uneven and rough cuts at the points of bearing shall be cause for rejection of the piece containing the defect.

530.5.6 Laminated bridge floors shall be constructed with planks, as shown on the plans. The planks shall be laid with the better edge down.

530.6 PAINTING

The railing of timber bridges, including the posts, the entire outer edge of bridge decks except treated surfaces, and any other surfaces indicated on the plans to be painted, shall be painted as prescribed in Section 157. The surface of wooden guard rails above the ground shall be painted as prescribed in Section 157. The lumber shall be cut to fit and then the entire surface shall be given the specified prime coat. The remaining coats shall be applied after the structure has been erected.

530.7 MEASUREMENT AND PAYMENT

Timber structures will be measured as provided in the Bid Proposal. Where board measure is used, the quantity will be determined from nominal widths and thicknesses and the actual lengths of the pieces in the finished structure, except

that in laminated timber flooring the number of laminations shall be the required number of the size specified after dressing and the length of each lamination shall be considered as the full width of length of the floor.